



Family Health *Dataline*

IN THIS ISSUE:

- The most common causes of infant death in Alaska during 1992-98 were – in order – sudden infant death syndrome (SIDS), preterm birth, and congenital anomalies.
- Alaska Natives had higher cause-specific infant mortality rates than non-Natives for all causes of infant death examined, both during 1992-95 and during 1996-98.
- Virtually all SIDS deaths in Alaska occurred to infants with known sleep-related risk factors, including prone position, sleeping outside of a standard infant crib, and sleeping with a substance-using parent.
- Among 40 infants who died of SIDS and who slept with a parent on the night of death, 37 (93%) slept with a parent who had chart documentation of a history of drug use (most commonly tobacco cigarette use); in the absence of parental drug use, bed sharing was a safe practice.
- The majority (82%) of abuse or neglect related deaths occurred in families with major social problems, including illicit substance use (39%), alcohol use (36%), domestic violence (27%), previous referrals to Alaska's Youth Protective Services Office (15%), and serious maternal illness (12%).

Findings of the Alaska Maternal-Infant Mortality Review, 2000

Infant mortality is declining in Alaska. Despite this, some causes of preventable infant deaths remain prevalent, including sudden infant death syndrome, abuse and neglect, and medical interventions. The Alaska Maternal Infant Mortality Review (AMIMR) seeks to lower the incidence of infant death through committee review of infant death records, identification of programs to prevent infant deaths, and advocacy for these programs.

Methodology

Previous issues of the Dataline have described in detail the AMIMR process. Briefly, the Section of Maternal, Child, and Family Health, Alaska Division of Public Health attempts to acquire a standard set of information for each infant death that occurs in Alaska. This information is collected from infant and maternal medical records and birth and death certificates for all infants and, for some infants, autopsy reports, police reports, and home interviews. Infant death is defined as the death of an infant before his or her first birthday. Once each month, two to four members of the AMIMR Committee review eight to 12 infant deaths and identify the most likely underlying and contributing causes of death, whether the death was potentially preventable and potential factors that would have altered the outcome. Once each year the entire AMIMR Committee reviews the findings of the previous year and arrives at consensus recommendations based on these findings. For the current review, the AMIMR committee considered aggregate data for the years 1992-98. Because 97% of the known infant deaths that occurred during this period had been reviewed, this allowed collection of cause specific infant mortality rates and risk factors.

Findings

Cause of death

Of 569 known infant deaths that occurred during 1992-98, the committee reviewed 566 (99%). Allowing for multiple causes of death the committee found that the most common causes of death were sudden infant death syndrome (SIDS) or other asphyxia of unknown etiology, preterm birth,

congenital anomalies, and infectious diseases (Figure 1). Alaska Natives had higher cause-specific infant mortality rates for all causes of infant death examined, both during 1992-95 and during 1996-98. For most causes of death, the mortality rate decreased substantially for Alaska Natives between 1992-95 and 1996-98 while decreases in cause-specific mortality were less substantial among non-Natives. The AMIMR committee judged that during 1992-95 21% of deaths were potentially preventable given the current state of medical knowledge, while during 1996-98 this percentage increased to 34%. This increase may have been due to the recognition that many SIDS deaths are now considered preventable.

SIDS

For SIDS, we present data for 1992-97 for consistency with a special study conducted to examine SIDS cases in more depth (for the complete results of this study see Gessner et al, Pediatrics 2001;108:923-7). For

130 infants, the death certificate (not the AMIMR committee) identified SIDS as the cause of death. SIDS was more common among low birth weight infants and the infants of Alaska Native and less educated women. Twenty-two percent of infants that died from SIDS had a substantial physiological abnormality and 64% had a parent with a history of cigarette, extensive alcohol, or illicit drug use.

Despite the common occurrence the above known risk factors for SIDS, SIDS deaths rarely occurred in the absence of sleep-related risk factors. Of 115 deaths for which this information was known, 113 (98%) involved infants that were sleeping prone (n=63), with another person (n=50), or outside of a standard infant crib (n=78). Said differently, only two SIDS deaths occurred to infants who slept alone, in a crib, and in the supine position; of these two deaths, one infant was found with a blanket wrapped around his face.

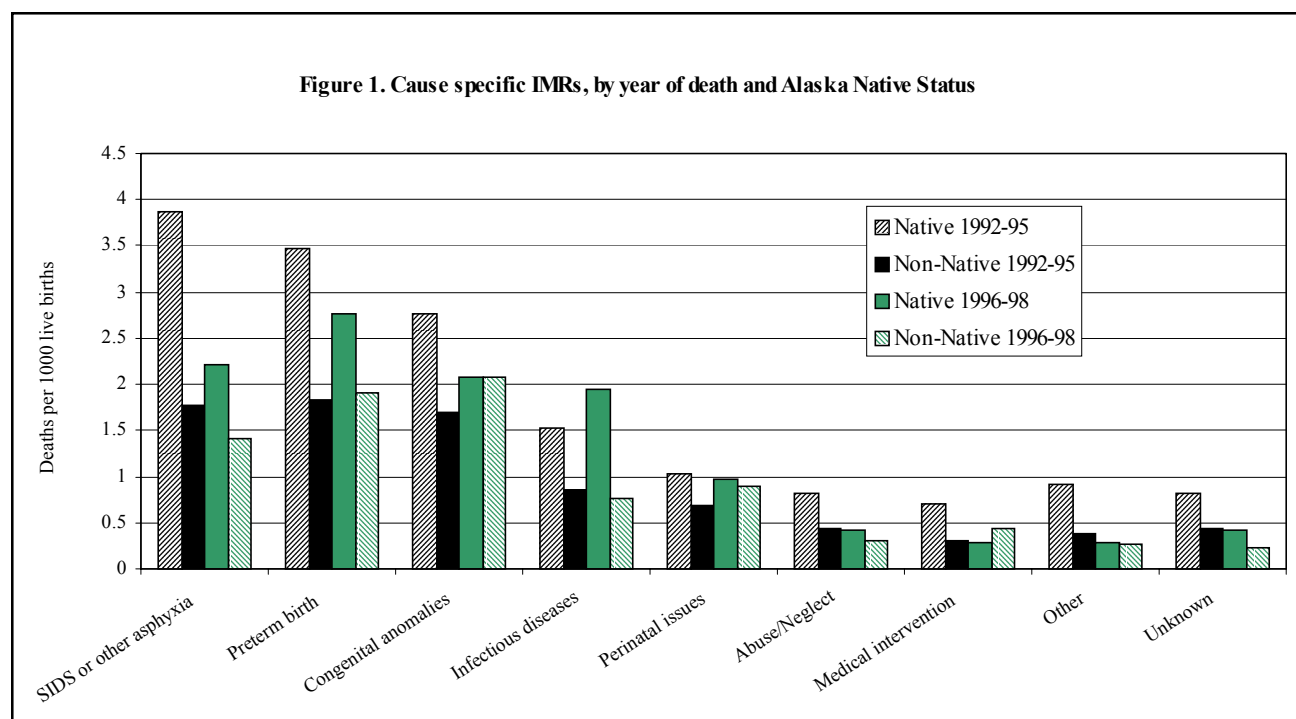
In the absence of parental drug use, bed sharing was not associated with SIDS. Among 40 infants who slept with a parent on the night of death, 37 (93%) slept with a parent who had chart documentation of a history of drug use (most commonly tobacco cigarette use), 14 were found in the prone position, nine had a substantial physiological abnormality, and seven slept on a surface other than a non-water mattress or crib. In sum, one infant (2.3%) was identified whose only risk factor was sleeping with a non-impaired parent on a standard adult non-water mattress.

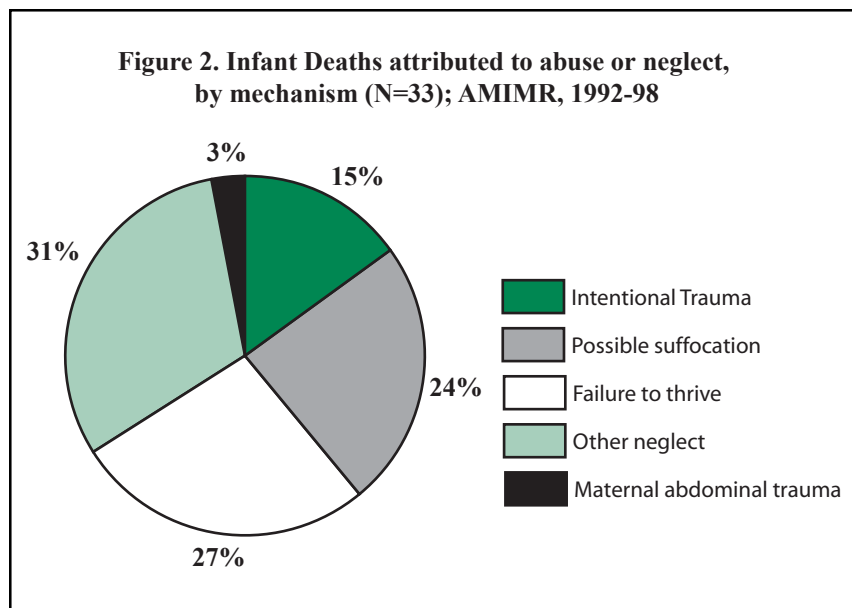
Abuse and neglect

Assignment of abuse or neglect as a cause of death requires a legal decision by a court. Few of the deaths reported here meet this criterion. Instead, these are deaths for which the committee determined that abuse or neglect caused or contributed to the infant's death.

The AMIMR committee identified 33 deaths that occurred during 1992-98 and that were possibly associated with abuse or neglect. The implicated mechanisms included failure to thrive, suffocation, and

Figure 1. Cause specific IMRs, by year of death and Alaska Native Status





intentional trauma (Figure 2). Of the 33 deaths, the death certificate assigned SIDS or other asphyxia as the cause of death for 52%, trauma for 27%, and a variety of other causes for the remainder. The majority (82%) of abuse or neglect related deaths occurred in families with major social problems, including illicit substance use (39%), alcohol use (36%), domestic violence (27%), previous referrals to Alaska's Division of Family and Youth Services (15%), and serious maternal illness (12%).

Abuse and neglect related deaths were associated with young maternal age and less maternal education (Table 1). Infants born to mothers <18 years of age were at particularly high risk, although these infants constituted only 22% of all abuse and neglect associated deaths.

Medical intervention

For 29 infants, or approximately four per year, the committee identified a medical intervention or lack of appropriate care as contributing to death. The most common implicated events were cardiac and other surgery and perinatal events (Figure 3). Medical intervention deaths were not associated with infant gender or maternal race, education, or age.

Table 1. Abuse and neglect specific infant mortality rates for 33 infants; Alaska Maternal-Infant Mortality Review, 1992-98.

Risk group*	Abuse and neglect deaths	Mortality rate (per 1000 live births)	Rate ratio (95% confidence limits)
Maternal education			
<12	12	1.2	5.3 (2.1, 13.4)
12	12	0.40	1.8 (0.71, 4.6)
12+	7	0.22	Ref.
Maternal age			
<18	7	2.4	6.1 (2.3, 16)
18-19	2	0.38	0.95 (0.21, 4.3)
20-29	13	0.32	0.81 (0.36, 1.9)
30+	10	0.40	Ref.
Maternal race			
Alaska Native	11	0.65	1.7 (0.84, 3.6)
Non-Native	21	0.37	Ref.

*Not all risk factor information was known for all infants

Recommendations

Coordination between DFYS and MIMR

The AMIMR Committee reviews have documented that abuse and neglect are a prevalent cause of infant mortality in Alaska and that infant deaths represent only a small portion of all abuse and neglect deaths. To improve intervention programs, AMIMR recommends the following:

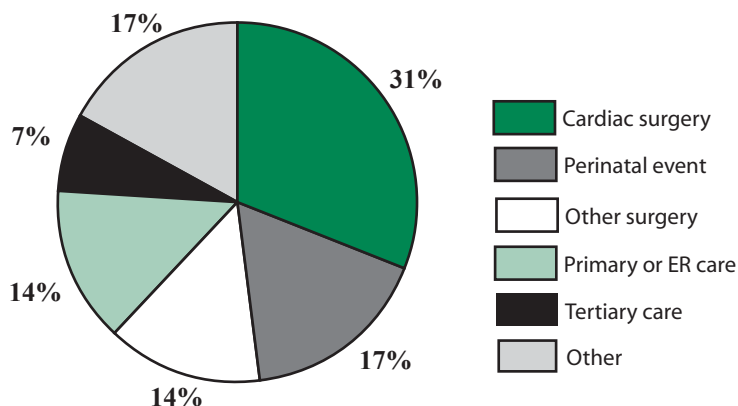
- The MIMR Committee should have direct access to DFYS investigative reports for infant deaths.
- A mechanism should be established to identify infant deaths that may have had past involvement with DFYS services. Records for these deaths should be made available to the AMIMR committee. To facilitate this process, a specific contact person at DFYS should be identified.

Coordination between the Child Fatality Review Team (CFRT) and MIMR

The purpose of CFRT is to identify individual deaths that may have resulted from intentional harm to an infant and to pursue legal action. By contrast, MIMR seeks to identify population-based trends in infant mortality that can be used to develop prevention programs. Because of the considerable overlap in the roles of these two organizations, the CFRT and MIMR Committees should work jointly to generate a coherent prevention message to Alaskans.

- A joint CFRT/MIMR working group should be established to formulate actions/mission statements.
- Programs should be developed to communicate prevention methods to communities, including joint slide

Figure 3. Categories associated with 29 infant deaths for which medical intervention was considered a possible contributor to death; AMIMR, 1992-98



presentations, public service announcements, pamphlets, and posters.

Sudden infant death syndrome

- Public health campaigns are needed to address the three major sleep related risk factors for SIDS deaths, i.e., prone sleeping, sleeping on inappropriate surfaces, and bed sharing with a drug impaired parent.
- Crib loan programs should be part of SIDS prevention campaigns.

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Funding

- AMIMR recognizes that DFYS is underfunded and advocates for increased funding for this agency.
- Funding will be needed to develop prevention programs based on the recommendations of the AMIMR committee.

Other recommendations

- A more standardized process for assignment of preventability for the AMIMR should be established.
- AMIMR review sessions should include a perinatologist and neonatologist when preterm or low birth weight infants are reviewed.
- Patient education, better social supports, and increased child protective service's involvement are recommended by the AMIMR to help prevent abuse and neglect related deaths.
- A unified statewide death scene investigation form should be developed for law enforcement agencies. Such a form would report on sleep position, sleep partners, bedding and parental drug use.

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State of Alaska, MCFH
 3601 C St., Ste. 934
 PO Box 240249
 Anchorage, Alaska 99524-0249

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